FY 02 CALENDAR (OCTOBER 2001 - SEPTEMBER 2002)

KIM EARNSHAW, COORDINATOR 757-1009

ENGINEERING & SCIENCES	COST	COURSE DATES AND COURSE CODES											
		OCT 01	NOV 01	DEC 01	JAN 02	FEB 02	MAR 02	APR 02	MAY 02	JUN 02	JUL 02	AUG 02	SEP 02
Active Sonar and Underwater Acoustics	$650							10-11 495391					
Applied Statistics for Engineers	$650						04-05 495386						
Airborne Systems Test and Evaluation	$1500		05-16 496171										
Airworthiness Training	$175			05 495371			06 495372			05 495373			04 495374
Basic Acoustics	$650									19-20 495389			
Basic Mechanical Vibration Control	$650			05-06 495392									
Calculus with Analytical Geometry Refresher	$650			03-04 495385									
Class Desk and APML Orientation	None		26-29 493972				25-28 493973				22-25 493974		
Crewstation Analysis	$760	To Be Determined											
Differential Equations with Laplace Transforms	$650							08-09 495399					
Electromagnetic Interference and Compatability (EMI/EMC)	$1395						04-08 495812						
Infrared Imaging Systems: An Introduction	$890					27-28 495810							
Intellectual Property and Technology Transfer	None	25 495453			17 495454			18 495455			18 495456		
Introductory Calculus for Non-engineers	$650								15-16 495400				
Introduction to Airplane Flying Qualities	$1200	09-19 496172											
Introduction to Flight Test	$1000	To Be Determined											
Linear Algebra with Engineering Applications	$650									17-18 495388			
MIL-STD 1553 Multiplex Bus	$850				15-17 495045						16-18 495046		
Partial Differential Equations with Special Topics	$650								13-14 495387				
Passive Sonar and Underwater Acoustics	$650						06-07 495390						
Spreadsheet Aided Engineering	$1500				07-11 496420								
Weibull/Log Normal Analysis Workshop	$1100							22-25 495815					

COURSE TITLE:	**ACTIVE SONAR AND UNDERWATER ACOUSTICS**	
VENDOR:	Alan D. Stuart P.O. Box 393 Lemont, PA 16851	
LOCATION:	Employee Development Center, Building #2189	
COURSE CODES: 495391	**DATES:** 10-11 April 02	**NOMINATION DEADLINES:** 08 March 02
TIME:	8:00 a.m.-4:00 p.m.	
DESCRIPTION:	This course provides an introductory overview of active sonar and underwater acoustics. Topics include: reflection, refraction, and scattering; convergence zones; sound channels; surface effects; bottom effects; shallow water and littoral ASW considerations; active sonar equation and signal processing; range-Doppler representation, ambiguity; reverberation; target strength; and other topics of interest to course participants.	
OBJECTIVE:	Emphasis is placed on illustrating phenomena and principles through demonstrations and examples from common experience. Topics are presented with a minimum of mathematics.	
AUDIENCE:	This course is intended for anyone with a desire to learn about sonar acoustics, or anyone in need of a refresher.	
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the competency training contact. The training contact forwards the request to the Workforce Relations and Development Division via the Training Information Processing System (TIPS). **NOTE:** Contractor personnel may attend on a space-available basis. Nominations must be made by letter addressed to the Program Coordinator. Once the nominee receives a confirmation of acceptance, a check made payable to the vendor must be sent directly to the Program Coordinator at the Employee Development Center prior to the first day of class.	
COST:	$650	
METHOD OF PAYMENT:	Vendor DOES NOT accept credit cards. EMPLOYEE must circle “R” in Block 22, under “Payment” on the Initial Training Request Form.	

COURSE TITLE:	**APPLIED STATISTICS FOR ENGINEERS**	
VENDOR:	Alan D. Stuart P.O. Box 393 Lemont, PA 16851	
LOCATION:	Employee Development Center, Building #2189	
COURSE CODES: 495386	**DATES:** 04-05 March 02	**NOMINATION DEADLINES:** 01 February 02
TIME:	8:00 a.m.-4:00 p.m.	
DESCRIPTION:	This course provides a basic introductory overview of statistics and probability. Concepts introduced include: mean, variance, and standard deviation; probability density and cumulative distributions; sampling and decision theory; confidence levels and intervals; percentiles and probability plots; linear regression analysis; Venn diagrams, and combinational and conditional probabilities, etc. Engineering applications include: design-of-experiments, signal processing, manufacturing tolerances, system reliability. Participants receive a copy of the instructor's course notes, as well as a self-study review of text containing many worked-out examples.	
OBJECTIVE:	Students should complete the course with a basic understanding of statistical applications and how they relate to engineering.	
AUDIENCE:	This course is intended for engineers and technicians with a desire to learn about statistics and probability, or who need a refresher.	
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the competency training contact. The training contact forwards the request to the Workforce Relations and Development Division via the Training Information Processing System (TIPS). **NOTE:** Contractor personnel may attend on a space-available basis. Nominations must be made by letter addressed to the Program Coordinator. Once the nominee receives a confirmation of acceptance, a check made payable to the vendor must be sent directly to the Program Coordinator at the Employee Development Center prior to the first day of class.	
COST:	$650	
METHOD OF PAYMENT:	Vendor DOES NOT accept credit cards. EMPLOYEE must circle "R" in Block 22, under "Payment" on the Initial Training Request Form.	

COURSE TITLE:	**AIRBORNE SYSTEMS TEST AND EVALUATION**	
VENDOR:	United States Naval Test Pilot School	
LOCATION:	United States Naval Test Pilot School	
COURSE CODE: 496171	**DATE:** 05-16 November 01	**NOMINATION DEADLINE:** 12 October 01
TIME:	8:00 a.m.-3:30 p.m.	

DESCRIPTION:	Topics include:
	❖ Review of Report Writing
	❖ Review of the Research and Evaluation Paragraph
	❖ Airborne Systems Basics and Flight Test Techniques
	  ❖ Radar Theory
	  ❖ Electro-Optical Theory
	  ❖ Navigation System Theory
	  ❖ Software Test and Evaluation
	❖ Integrated Systems Testing
	  ❖ Test Design
	  ❖ Safety and Technical Review
	❖ Flying the Test
	  ❖ Each student will conduct a radar, navigation and electro-optical integrated systems flight on the Airborne Systems Test and Research Support Airplane (ASTARS).
	❖ Analysis of Results
	❖ Data Presentation	

OBJECTIVE:	At the completion of this course, participants will: ❖ Understand the theory of radar, navigation, and electro-optical systems individually and as part of an integrated system. ❖ Design and execute an integrated systems test plan. ❖ Report on test results both orally and several written formats.	
AUDIENCE:	Engineers and scientists involved in the test and evaluation of airborne systems.	
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the activity training contact. The training contact forwards the request to the Workforce Relations and Development Division via the Training Information Processing System (TIPS).	
COST:	$1500 (includes flight time)	
METHOD OF PAYMENT:	This payment is via Budget-based Transfer. EMPLOYEE must circle “B” in Block 22, under “Payment” on the Initial Training Request Form.	
For more information, please contact the Short Course Department at the United States Naval Test Pilot School. (301)757-5044		

COURSE TITLE:	**AIRWORTHINESS TRAINING**	
VENDOR:	Airworthiness/Flight Clearance AIR – 4.3P Patuxent River, MD 20670	
LOCATION:	Patuxent River, MD	
COURSE CODE: 495371 495372 495373 495374	**DATE:** 05 December 01 06 March 02 05 June 02 04 September 02	**NOMINATION DEADLINE:** 16 November 01 08 February 02 05 April 02 02 August 02
TIME:	8:00 a.m.-3:30 p.m.	
DESCRIPTION:	This course provides Project Officers, Project Managers, Project Engineers, and other personnel a working knowledge and a comprehensive understanding of the Airworthiness process. The course will define flight clearance requirements and what a flight clearance can authorize. This course will also explain the Naval Instruction that governs the Flight Clearance process: NAVAIRINST 13034.1A.	
OBJECTIVE:	At the completion of this course the participants should be able to: ❖ Understand Airworthiness policies and procedures. ❖ Know when a flight clearance is required. ❖ Draft a flight clearance request. ❖ Understand how to define data requirements. ❖ Understand formal engineering airworthiness review process and time requirements. ❖ Know the standard seven part message format for requests and flight clearances. ❖ Know the NAVAIR/flight clearance points of contact.	
AUDIENCE:	Officers, Engineers, Technicians, and Managers who may be required to review flight clearances and flight clearance requests.	
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the activity training contact/Customer Service Team. The training contact/CST forwards the request to the Workforce Relations and Development Division via the Training Information Processing System (TIPS).	
COST:	$175	
METHOD OF PAYMENT:	This payment is via Budget-based Transfer. EMPLOYEE must circle “B” in Block 22, under “Payment” on the Initial Training Request Form.	

COURSE TITLE:	**BASIC ACOUSTICS**	
VENDOR:	Alan D. Stuart P.O. Box 393 Lemont, PA 16851	
LOCATION:	Employee Development Center, Building #2189	
COURSE CODES: 495389	**DATES:** 19-20 June 02	**NOMINATION DEADLINES:** 17 May 02
TIME:	8:00 a.m.-4:00 p.m.	
DESCRIPTION:	This course provides an introductory overview of acoustics. Elements covered will include: acoustic waves in fluids and structures; plane and spherical waves; acoustic sensors and sources; wave and radiation impedance concepts; reference levels and dB scale; sound reflection, transmission, and refraction; Snell's law and coincident effect; sound radiation, source level and radiated power; directivity of simple sound sources and receivers; and acoustics filters, Helmholtz resonators and ducts.	
OBJECTIVE:	Emphasis is placed on illustrating phenomena and principles through demonstrations and examples from common experience. Topics are presented with a minimum of mathematics.	
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the competency training contact. The training contact forwards the request to the Workforce Relations and Development Division via the Training Information Processing System (TIPS). **NOTE:** Contractor personnel may attend on a space-available basis. Nominations must be made by letter addressed to the Program Coordinator. Once the nominee receives a confirmation of acceptance, a check made payable to the vendor must be sent directly to the Program Coordinator at the Employee Development Center prior to the first day of class.	
COST:	$650	
METHOD OF PAYMENT:	Vendor DOES NOT accept credit cards. EMPLOYEE must circle "R" in Block 22, under "Payment" on the Initial Training Request Form.	

COURSE TITLE:	**BASIC MECHANICAL VIBRATION CONTROL**	
VENDOR:	Alan D. Stuart P.O. Box 393 Lemont, PA 16851	
LOCATION:	Employee Development Center, Building #2189	
COURSE CODES: 495392	**DATES:** 05-06 December 01	**NOMINATION DEADLINES:** 02 November 01
TIME:	8:00 a.m.-4:00 p.m.	
DESCRIPTION:	This course provides an introductory overview of basic mechanical vibratory systems and techniques used in vibration control. Vibration concepts include: simple vibrators (one and multiple degrees-of-freedom), frequency response functions (FRF), basics of modal analysis, vibration characteristics of structures, basic measurement techniques and analysis procedures. Control concepts include: dynamic damping materials, isolation mounts, and tuned dynamic absorbers. Topics of particular interest to the class will be discussed. Each participant receives a copy of the instructor's course notes, as well as a self-study review text containing many worked-out examples.	
OBJECTIVE:	Emphasis is placed on illustrating phenomena and principles through demonstrations and examples from common experience. Topics are presented with a minimum of mathematics.	
AUDIENCE:	This course is intended for anyone with a desire to learn about basic mechanical vibration, or anyone in need of a refresher.	
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the competency training contact. The training contact forwards the request to the Workforce Relations and Development Division via the Training Information Processing System (TIPS). **NOTE:** Contractor personnel may attend on a space-available basis. Nominations must be made by letter addressed to the Program Coordinator. Once the nominee receives a confirmation of acceptance, a check made payable to the vendor must be sent directly to the Program Coordinator at the Employee Development Center prior to the first day of class.	
COST:	$650	
METHOD OF PAYMENT:	Vendor DOES NOT accept credit cards. EMPLOYEE must circle "R" in Block 22, under "Payment" on the Initial Training Request Form.	

COURSE TITLE:	**CALCULUS WITH ANALYTICAL GEOMETRY REFRESHER**	
VENDOR:	Alan D. Stuart P.O. Box 393 Lemont, PA 16851	
LOCATION:	Employee Development Center, Building #2189	
COURSE CODES: 495385	**DATES:** 03-04 December 01	**NOMINATION DEADLINES:** 08 November 2001
TIME:	8:00 a.m.-4:00 p.m.	
DESCRIPTION:	This refresher course will cover the areas of analytic geometry; differential calculus; derivatives of algebraic functions; maximum & minimum extremes; related rates problems; integration; substitution, by-parts & partial fractions techniques; and engineering applications of integration.	
OBJECTIVE:	Emphasis is placed on how to use math as a tool to set up and interpret engineering problems. Students review representative problems and discuss their results in class.	
AUDIENCE:	This course is intended for those taking technical classes, pursuing either graduate or undergraduate studies, or just desiring a refresher.	
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the competency training contact. The training contact forwards the request to the Workforce Relations and Development Division via the Training Information Processing System (TIPS). **NOTE:** Contractor personnel may attend on a space-available basis. Nominations must be made by letter addressed to the Program Coordinator. Once the nominee receives a confirmation of acceptance, a check made payable to the vendor must be sent directly to the Program Coordinator at the Employee Development Center prior to the first day of class.	
COST:	$650	
METHOD OF PAYMENT:	Vendor DOES NOT accept credit cards. EMPLOYEE must circle “R” in Block 22, under “Payment” on the Initial Training Request Form.	

COURSE TITLE:	**CLASS DESK AND APML ORIENTATION**	
VENDOR:	AIR 4.1 Naval Air Systems Command Patuxent River, Maryland 20670	
LOCATION:	Employee Development Center, Building #2189	
COURSE CODE: 493972 493973 493974	**DATE:** 26-29 November 01 25-28 March 02 22-25 July 02	**NOMINATION DEADLINE:** 26 October 01 22 February 02 21 June 02
TIME:	8:00 a.m.-3:30 p.m.	
DESCRIPTION:	This course provides a description of the roles and responsibilities for personnel assigned as Assistant Program Manager for Systems Engineering (Class Desk) or Assistant Program Manager for Logistics (APML) within a competency aligned organization, and the role of systems engineering and logistics in acquisition. Additional modules covering associated processes are presented including new acquisition model, budget and finance, design reviews, product integrity, engineering investigations and hazard material reports, grounding bulletins and red stripes, technical directives and bulletins, system safety & risk assessment, software, maintenance planning/design interface, logistics support, configuration management, cost analysis, total ownership cost, earned value management, air vehicle engineering, airworthiness, test and evaluation and acquisition process overview.	
OBJECTIVE:	To provide basic skills and knowledge to enhance the performance of personnel newly assigned as assistant program manager for systems engineering (Class Desk) or assistant program manager for logistics.	
AUDIENCE:	Personnel newly assigned as class desks or APML's and supporting government and contract personnel. Other employees are welcome subject to space availability.	
PREREQUISITE:	None	
LENGTH:	3 ½ Days	
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the competency training contact. The training contact forwards the request to the Workforce Relations and Development Division via the Training Information Processing System (TIPS). **NOTE:** Contractor personnel may attend on a space-available basis. Nominations must be made by letter addressed to the Program Coordinator. Once the nominee receives a confirmation of acceptance, a check made payable to the vendor must be sent directly to the Program Coordinator at the Employee Development Center prior to the first day of class.	
COST:	None	

COURSE TITLE:	**CREWSTATION ANALYSIS**
VENDOR:	United States Naval Test Pilot School
LOCATION:	U.S. Naval Test Pilot School, Building #2168
DATE:	To Be Announced
TIME:	8:00 a.m.-4:00 p.m.
DESCRIPTION:	Topics include: ❖ Introductory Concepts (Systems Engineering) ❖ Anthropometry ❖ Static Analysis Techniques ❖ Sensory Perception ❖ Information Processing ❖ Applications to Displays and Controls ❖ Mental Workload Measures ❖ Psychomotor Work ❖ Task Analysis ❖ Decision-making ❖ Operator Interfaces ❖ Human Performance in Extreme Environments ❖ Dynamic Crewstation Analysis Techniques Two 3-hour practical exercises on USNTPS simulators/aircraft are incorporated to reinforce the classroom lectures.
OBJECTIVE:	At the completion of this course, participants will have a fundamental understanding of basic human factors considerations in order to enable safe and effective planning, direction, and execution of assessments of aircraft crewstations.
AUDIENCE:	Engineers and scientists involved in the test and evaluation of aircraft crewstations.
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the activity training contact. The training contact forwards the request to the Employee Development Division via the Training Information Processing System (TIPS).
COST:	$760
METHOD OF PAYMENT:	This payment is via Budget-based Transfer. EMPLOYEE must circle “B” in Block 22, under “Payment” on the Initial Training Request Form.
For more information, please contact the Short Course Department at the United States Naval Test Pilot School at (301) 757-5044 or -5045.	

COURSE TITLE:	**DIFFERENTIAL EQUATIONS WITH LAPLACE TRANSFORMS**	
VENDOR:	Alan D. Stuart P.O. Box 393 Lemont, PA 16851	
LOCATION:	Employee Development Center, Building #2189	
COURSE CODES: 495399	**DATES:** 08-09 April 02	**NOMINATION DEADLINES:** 08 March 02
TIME:	8:00 a.m.-4:00 p.m.	
DESCRIPTION:	This refresher course will cover the areas of linear first & second order differential equations; homogeneous and non-homogeneous equations; initial and boundary value problems; systems of ordinary linear differential equations; laplace transforms with method of residue; state variables formulation of simple systems; and engineering applications such as heat transfer, fluid dynamics, electrical circuits, control systems, and mechanical vibrations.	
OBJECTIVE:	Emphasis is placed on how to use math as a tool to set up and interpret engineering problems. Students review representative problems and discuss their results in class.	
AUDIENCE:	This course is intended for those taking technical classes, pursuing either graduate or undergraduate studies, or just desiring a refresher.	
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the competency training contact. The training contact forwards the request to the Workforce Relations and Development Division via the Training Information Processing System (TIPS). **NOTE:** Contractor personnel may attend on a space-available basis. Nominations must be made by letter addressed to the Program Coordinator. Once the nominee receives a confirmation of acceptance, a check made payable to the vendor must be sent directly to the Program Coordinator at the Employee Development Center prior to the first day of class.	
COST:	$650	
METHOD OF PAYMENT:	Vendor DOES NOT accept credit cards. EMPLOYEE must circle “R” in Block 22, under “Payment” on the Initial Training Request Form.	

COURSE TITLE:	**ELECTROMAGNETIC INTERFERENCE AND COMPATABILITY (EMI/EMC)**	
VENDOR:	The George Washington University Continuing Engineering Education Program 2029 K Street, N.W., Suite 600 Washington, D.C. 20052	
LOCATION:	Patuxent River, Maryland	
COURSE CODE: 495812	**DATE:** 04-08 March 02	**NOMINATION DEADLINE:** 01 February 02
TIME:	8:00 a.m.-3:30 p.m.	
DESCRIPTION:	This course presents a comprehensive review and the practical aspects of electromagnetic interference and electro-magnetic compatibility (EMI/EMC) testing under MIL-STDS 461, 462, and 464, their application to the design, development, test, and procurement of military electronic systems. Techniques for suppressing EMI including design and retrofits are discussed. Although some mathematical formulas are used, the course emphasizes the practical use of military standards. Basic principles are briefly reviewed at the beginning of the course.	
AUDIENCE:	Electrical engineers and technicians.	
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the competency training contact. The training contact forwards the request to the Workforce Relations and Development Division via the Training Information Processing System (TIPS). **NOTE:** Contractor personnel may attend on a space-available basis. Nominations must be made by letter addressed to the Program Coordinator. Once the nominee receives a confirmation of acceptance, a check made payable to the vendor must be sent directly to the Program Coordinator at the Employee Development Center prior to the first day of class.	
COST:	$1395 per person	
METHOD OF PAYMENT:	Vendor DOES accept credit cards. EMPLOYEE must circle “V” in Block 22, under “Payment” on the Initial Training Request Form.	

COURSE TITLE:	**INFRARED IMAGING SYSTEMS: AN INTRODUCTION**	
VENDOR:	The George Washington University Continuing Engineering Education Program 2029 K Street, N.W., Suite 600 Washington, D.C. 20052	
LOCATION:	Patuxent River, Maryland	
COURSE CODE: 495810	**DATE:** 27-28 February 02	**NOMINATION DEADLINE:** 25 January 02
TIME:	8:00 a.m.-3:30 p.m.	
DESCRIPTION:	This course presents background information on light characteristics, two-dimensional mathematics, linear shift invariant systems and diffraction. Infrared systems components such as radiation sources, atmospherics, optics, detectors, electronics, and human vision are reviewed. System-level performance, including system resolution and sensitivity parameters, is discussed. Finally, design, with emphasis on sensitivity, resolution, coverage, and throughput, is introduced. Examples of progress in infrared imagers, from older to state-of-the-art systems, are presented.	
AUDIENCE:	Engineers and scientists.	
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the competency training contact. The training contact forwards the request to the Workforce Relations and Development Division via the Training Information Processing System (TIPS). **NOTE:** Contractor personnel may attend on a space-available basis. Nominations must be made by letter addressed to the Program Coordinator. Once the nominee receives a confirmation of acceptance, a check made payable to the vendor must be sent directly to the Program Coordinator at the Employee Development Center prior to the first day of class.	
COST:	$890 per person	
METHOD OF PAYMENT:	Vendor DOES accept credit cards. EMPLOYEE must circle “V” in Block 22, under “Payment” on the Initial Training Request Form.	

COURSE TITLE:	**INTELLECTUAL PROPERTY AND TECHNOLOGY TRANSFER**	
VENDOR:	Office of Counsel & Office of Research and Tech. Applications Naval Air Warfare Center Aircraft Division Patuxent River, MD 20670	
LOCATION:	Patuxent River, Maryland	
COURSE CODE: 495453 495454 495455 495456	**DATE:** 25 October 01 17 January 02 18 April 02 18 July 02	**NOMINATION DEADLINE:** 04 October 01 20 December 01 22 March 02 21 June 02
TIME:	9:00 a.m.-3:00 p.m.	
DESCRIPTION:	Students will develop an understanding of technology transfer, the process in which technology or knowledge developed in one place or for one purpose is applied and exploited in another place for some other purpose. Within the DOD, this involves transfers occurring between federal laboratories and any nonfederal organization, including private industry, academia, and state and local governments, but can occur between federal agencies. A major long-term goal of the federal government is sustained economic growth; one way to achieve this is development and commercialization of new technologies. Federal labs try to foster and maintain advanced technical capabilities by partnering with private industry and academia. Students will learn about the specific mechanisms used for technology transfer, the legal issues associated with each, how an employee's innovation may be an invention that could be patented, and how and why intellectual property must be protected. They will also become acquainted with the NAWCAD Patuxent River Office of Research and Technology Applications (ORTA) and its role in implementing technology transfer at the command, and with the Office of Counsel and its responsibilities in protecting intellectual property.	
OBJECTIVE:	At the completion of the course, participants will understand: ❖ Inventions and patents. ❖ Methods to accomplish technology transfer. ❖ Patent Licensing. ❖ Cooperative research and development agreement. ❖ Commercial service agreement. ❖ Memorandum of agreement. ❖ Command processes and offices involved in technology transfer. ❖ Major technology transfer legislation.	
AUDIENCE:	RDT&E scientists and engineers	
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the activity training contact/Customer Service Team. The training contact/CST forwards the request to the Workforce Relations and Development Division via the Training Information Processing System (TIPS).	
COST:	None	

COURSE TITLE:	**INTRODUCTORY CALCULUS FOR NON-ENGINEERS**	
VENDOR:	Alan D. Stuart P.O. Box 393 Lemont, PA 16851	
LOCATION:	Employee Development Center, Building #2189	
COURSE CODES: 495400	**DATES:** 15-16 May 02	**NOMINATION DEADLINES:** 12 April 02
TIME:	8:00 a.m.-4:00 p.m.	
DESCRIPTION:	Emphasis is placed on how to use math as a tool to set up and interpret engineering problems. Topics presented include: review of basic functions and their derivatives, maximum and minimum, and related rate problems, integration techniques (substitution, by-parts, partial fraction), integration application (lengths, areas, volumes, work), vectors and other topics of interest to the class. Participants receive a copy of the instructor's course notes, as well as a self-study review text containing many worker-out examples.	
OBJECTIVE:	Emphasis is placed on illustrating phenomena and principles through demonstrations and examples from common experience. Topics are presented with a minimum of mathematics.	
AUDIENCE:	This course is intended for those taking technical classes, pursuing either graduate of undergraduate studies, or desiring just a refresher.	
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the competency training contact. The training contact forwards the request to the Workforce Relations and Development Division via the Training Information Processing System (TIPS). **NOTE:** Contractor personnel may attend on a space-available basis. Nominations must be made by letter addressed to the Program Coordinator. Once the nominee receives a confirmation of acceptance, a check made payable to the vendor must be sent directly to the Program Coordinator at the Employee Development Center prior to the first day of class.	
COST:	$650	
METHOD OF PAYMENT:	Vendor DOES NOT accept credit cards. EMPLOYEE must circle "R" in Block 22, under "Payment" on the Initial Training Request Form.	

COURSE TITLE:	**INTRODUCTION TO AIRPLANE FLYING QUALITIES**	
VENDOR:	United States Naval Test Pilot School	
LOCATION:	United States Naval Test Pilot School	
COURSE CODE: 496172	**DATE:** 09-19 October 01	**NOMINATION DEADLINE:** 14 September 01
TIME:	Classes will be held in the morning Flights and labs will be scheduled throughout the day as required by course enrollment	
DESCRIPTION:	*Week One*: Aerodynamics Summary Longitudinal Statics Non-Maneuvering Flight Characteristics Maneuvering Flight Characteristics Flight Controls Aerodynamic Non-linearity Lateral Directional Statics Simulation Exercises 1 Static longitudinal, non-maneuvering and maneuvering Static lateral-directional Longitudinal Dynamics Longitudinal Dynamic Modes Longitudinal Transfer Modes Lateral-Directional Dynamic Modes Lateral-Directional Transfer Functions *Week Two*: Longitudinal Handling Qualities/Testing Lateral-directional Handling Qualities/Testing Simulation Exercises 2 Longitudinal dynamic modes Lateral-directional dynamic modes Pilot Handling Qualities Evaluation Process Military Specificiations and Standards Advanced Flight Control Systems This course includes two demonstration flights.	
AUDIENCE:	Engineers and scientists involved in the test and evaluation of flight control systems.	
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the activity training contact/Customer Service Team. The training contact/CST forwards the request to the Workforce Relations and Development Division via the Training Information Processing System (TIPS).	
COST:	$1200 (including two flights) Please contact USNTPS at the number below for information.	
METHOD OF PAYMENT:	This payment is via Budget-based Transfer. EMPLOYEE must circle “B” in Block 22, under “Payment” on the Initial Training Request Form.	
For more information, please contact the Short Course Department at the United States Naval Test Pilot School. (301)757-5044.		

COURSE TITLE:	**INTRODUCTION TO FLIGHT TEST**
VENDOR:	United States Test Pilot School
LOCATION:	United States Test Pilot School
DATE:	To Be Announced
TIME:	8:00 a.m.-3:30 p.m.
DESCRIPTION:	Topics to be covered during the course include: ❖ The Acquisition Process ❖ The Test Planning Process ❖ Report Writing The Research and Evaluation Paragraph Types of Reports ❖ The DT-OT Transition Report ❖ Flight Clearances ❖ Data Collection and Instrumentation ❖ Airborne Systems Basics and Flight Test Techniques ❖ Introduction to Fixed and Rotary-wing Testing ❖ Test Planning an Inertial Navigation System Evaluation Flight Briefing Test Design Data Collection Safety and Technical Review ❖ Flying the Test ❖ Analysis of Results ❖ Data Presentation ❖ Naval Air Systems Command Ranges and Facilities This course includes a navigation evaluation flight in the USNTPS Airborne Systems Test and Research Support aircraft. Medical screening will be conducted during the first week of the course. For individuals with questions concerning this process, please contact the USNTPS Short Course Staff at the number below.
AUDIENCE:	The intended audience for this course is personnel involved in rotary-wing, fixed-wing or systems flight testing. This course is intended to provide the working level engineer with the information necessary to plan, brief, conduct, debrief and analyze flight test results.
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the activity training contact/Customer Service Team. The training contact/CST forwards the request to the Workforce Relations and Development Division via the Training Information Processing System (TIPS).
COST:	$1000 Includes course tuition and the ASTARS navigation evaluation flight.
METHOD OF PAYMENT:	This payment is via Budget-based Transfer. EMPLOYEE must circle “B” in Block 22, under “Payment” on the Initial Training Request Form.
For more information, please contact the Short Course Department at the United States Naval Test Pilot School. (301)757-5044	

COURSE TITLE:	**LINEAR ALGEBRA WITH ENGINEERING APPLICATIONS**	
VENDOR:	Alan D. Stuart P.O. Box 393 Lemont, PA 16851	
LOCATION:	Employee Development Center, Building #2189	
COURSE CODES: 495388	**DATES:** 17-18 June 02	**NOMINATION DEADLINES:** 17 May 02
TIME:	8:00 a.m.-4:00 p.m.	
DESCRIPTION:	This course provides a basic introductory overview of linear algebra and matrix analysis techniques used in engineering. Basic concepts are developed and explored through examples and geometrical interpretations. Topics include: a review of basic vector and matrix algebra; systems of linear equations; linear transforms; eigen-value and eigen-vectors problems; inverse matrix and determinants. Engineering applications include: engineering mechanics and vibrations; electrical circuits; state variables and control systems; signal processing; linear programming and numerical analysis; system reliability.	
OBJECTIVE:	Emphasis is placed on how to use math as a tool to set up and interpret engineering problems. Students review problems and discuss their results in class.	
AUDIENCE:	This course is intended for those taking technical classes, pursuing graduate or undergraduate studies, or desiring a review or introductory overview.	
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the competency training contact. The training contact forwards the request to the Workforce Relations and Development Division via the Training Information Processing System (TIPS). **NOTE:** Contractor personnel may attend on a space-available basis. Nominations must be made by letter addressed to the Program Coordinator. Once the nominee receives a confirmation of acceptance, a check made payable to the vendor must be sent directly to the Program Coordinator at the Employee Development Center prior to the first day of class.	
COST:	$650	
METHOD OF PAYMENT:	Vendor DOES NOT accept credit cards. EMPLOYEE must circle "R" in Block 22, under "Payment" on the Initial Training Request Form.	

COURSE TITLE:	**MIL-STD-1553-MULTIPLEX BUS**	
VENDOR:	Test Systems, Inc. 217 W Palmaire Phoenix, AZ 85021	
LOCATION:	Employee Development Center, Building #2189	
COURSE CODE: 495045 495046	**DATE:** 15-17 January 02 16-18 July 02	**NOMINATION DEADLINE:** 14 December 01 17 June 02
TIME:	8:00 a.m.-4:00 p.m.	
DESCRIPTION:	The MIL-STD-1553 data bus is presently used in many advanced military programs and is also used to update systems in older programs. The applications are expanding rapidly requiring more trained engineers to deal with the technology. This 3-day seminar presents a thorough discussion of MIL-STD-1553 theory, application and testing. Two lab sessions illustrate the material being taught by providing students with "hands on" experience in identifying 1553 communication and trouble shooting remote terminal problems. Both experienced 1553 personnel and novices will find the seminar profitable.	
OBJECTIVE:	By the end of the course, each participant will be able to: ❖ State the definition of basic 1553 terms, data bus operation, date encoding, word sync, word forms, message formats, intermessage gap and response time. ❖ Understand MIL-STD-1553 Protocol including: Command. ❖ Word, Mode Codes, Mode Command Formats, Data ❖ Word Status Word, and Message Error Bit. ❖ Describe MIL-STD-1553 Hardware Characteristics. ❖ Describe System and Software Designs associated with ❖ MIL-STD-1553 data buses. ❖ Understand the philosophy of testing and phases of testing. ❖ State test requirements and test equipment requirements.	
AUDIENCE:	Engineers, Technicians, System Designers and Managers who may be required to specify, design or test of systems employing the standard. Those attending should have a general knowledge of how digital busses work.	
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the activity training contact/Customer Service Team. The training contact/CST forwards the request to the Workforce Relations and Development Division via the Training Information Processing System (TIPS). **NOTE**: Contractors should contact the vendor directly to obtain a seat.	
COST:	$ 850 per person	
METHOD OF PAYMENT:	Vendor DOES accept credit cards. EMPLOYEE must circle “V” in Block 22, under “Payment” on the Initial Training Request Form.	

COURSE TITLE:	**PARTIAL DIFFERENTIAL EQUATIONS WITH SPECIAL TOPICS**	
VENDOR:	Alan D. Stuart P.O. Box 393 Lemont, PA 16851	
LOCATION:	Patuxent River, Building #1489	
COURSE CODES: 495387	**DATES:** 13-14 May 02	**NOMINATION DEADLINES:** 12 April 02
TIME:	8:00 a.m.-4:00 p.m.	
DESCRIPTION:	This refresher course will cover the areas of ordinary differential equations; boundary value problems; Fourier and other orthogonal series; separation of variables, Eigenfunction expansions; vector analysis and Green's function; integral transform techniques; and engineering applications including structural vibrations, model analysis, heat transfer; fluids dynamics; sound waves, and wave guides.	
OBJECTIVE:	Emphasis is placed on how to use math as a tool to set up and interpret engineering problems. Students review representative problems and discuss their results in class.	
AUDIENCE:	This course is intended for those taking technical classes, pursuing either graduate or undergraduate studies, or just desiring a refresher.	
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the competency training contact. The training contact forwards the request to the Workforce Relations and Development Division via the Training Information Processing System (TIPS). **NOTE:** Contractor personnel may attend on a space-available basis. Nominations must be made by letter addressed to the Program Coordinator. Once the nominee receives a confirmation of acceptance, a check made payable to the vendor must be sent directly to the Program Coordinator at the Employee Development Center prior to the first day of class.	
COST:	$650	
METHOD OF PAYMENT:	Vendor DOES NOT accept credit cards. EMPLOYEE must circle "R" in Block 22, under "Payment" on the Initial Training Request Form.	

COURSE TITLE:	**PASSIVE SONAR AND UNDERWATER ACOUSTICS**	
VENDOR:	Alan D. Stuart P.O. Box 393 Lemont, PA 16851	
LOCATION:	Employee Development Center, Building #2189	
COURSE CODES: 495390	**DATES:** 06-07 March 02	**NOMINATION DEADLINES:** 08 February 02
TIME:	8:00 a.m.-4:00 p.m.	
DESCRIPTION:	This course provides an introductory overview of passive sonar and underwater acoustics. Topics include: acoustic waves in Sea Water, dB scales; sound velocity profiles; underwater sound propagation; cavitation threshold; ambient, self and rediated noise; octave and narrow band analysis; sonar transducers and arrays; passive sonar equation and signal processing; detection threshold concepts; figure of merit and range considerations; and other topics of interest to course participants.	
OBJECTIVE:	Emphasis is placed on illustrating phenomena and principles through demonstrations and examples from common experience. Topics are presented with a minimum of mathematics.	
AUDIENCE:	This course is intended for anyone with a desire to learn about sonar acoustics, or anyone in need of a refresher.	
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the competency training contact. The training contact forwards the request to the Workforce Relations and Development Division via the Training Information Processing System (TIPS). **NOTE:** Contractor personnel may attend on a space-available basis. Nominations must be made by letter addressed to the Program Coordinator. Once the nominee receives a confirmation of acceptance, a check made payable to the vendor must be sent directly to the Program Coordinator at the Employee Development Center prior to the first day of class.	
COST:	$650	
METHOD OF PAYMENT:	Vendor DOES NOT accept credit cards. EMPLOYEE must circle “R” in Block 22, under “Payment” on the Initial Training Request Form.	

COURSE TITLE:	**SPREADSHEET AIDED ENGINEERING**	
VENDOR:	SpreadsheetWorld, Inc. P.O. Box 261158 Encino, CA 91426-1158	
LOCATION:	Employee Development Center, Building #2189	
COURSE CODES: 496420	**DATES:** 07-11 January 02	**NOMINATION DEADLINES:** 07 December 01
TIME:	8:00 a.m.-4:00 p.m.	
DESCRIPTION:	Excel Spreadsheets are used to establish a platform for performing engineering system design, analysis, optimization and uncertainty analysis. Participants are led through a structured approach to systems design, with the basic principle of object-oriented programming introduced along the way. Techniques are introduced for spreadsheet architecture and communication for large-scale systems engineering.	
OBJECTIVE:	At the completion of this course, students should have an increased understanding of their systems and processes, an increased integration of engineering disciplines, and better intuition of performance dependence on controlling design parameters.	
AUDIENCE:	Engineers of all disciplines who have a computer background that includes basic keyboard and Excel skills.	
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the competency training contact. The training contact forwards the request to the Workforce Relations and Development Division via the Training Information Processing System (TIPS). **NOTE:** Contractor personnel may attend on a space-available basis. Nominations must be made by letter addressed to the Program Coordinator. Once the nominee receives a confirmation of acceptance, a check made payable to the vendor must be sent directly to the Program Coordinator at the Employee Development Center prior to the first day of class.	
COST:	$1500	
METHOD OF PAYMENT:	Vendor DOES accept credit cards. EMPLOYEE must circle “V” in Block 22, under “Payment” on the Initial Training Request Form.	

COURSE TITLE:	**WEIBULL/LOG NORMAL ANALYSIS WORKSHOP**	
VENDOR:	Dr. Robert Abernethy 536 Oyster Road, North Palm Beach, FL 33408-4328	
LOCATION:	Employee Development Center, Building #2189	
COURSE CODE: 495815	**DATE:** 22-25 April 02	**NOMINATION DEADLINE:** 15 March 02
TIME:	8:00 a.m.-4:00 p.m.	
DESCRIPTION:	This course covers basic Weibull analysis, intensive treatment of The New Weibull Handbook, the four SuperSMITH including hands-on computer tutorial, plus an understanding of system simulation for building system models for reliability, maintainability, safety, spare parts, logistics analysis and warranty-guarantee costs.	
OBJECTIVE:	Upon completion of this course students will be able to : ❖ Solve problems using WinSMITH (Windows) or WeibullSMITH (DOS), VISUALSMITH, BiWiebullSMITH & MonteCarloSMITH	
AUDIENCE:	This four-day intensive instructional and hands-on workshop is intended for engineers involved with engine test, evaluation and analysis	
NOMINATIONS:	Nominations must be submitted through use of the Initial Training Request Form, NDW-NAWCAD 12410/28 (Rev. 05/01). The completed form, with appropriate signatures, is given to the competency training contact. The training contact forwards the request to the Workforce Relations and Development Division via the Training Information Processing System (TIPS). **NOTE:** Contractor personnel may attend on a space-available basis. Nominations must be made by letter addressed to the Program Coordinator. Once the nominee receives a confirmation of acceptance, a check made payable to the vendor must be sent directly to the Program Coordinator at the Employee Development Center prior to the first day of class.	
COST:	$1100	
METHOD OF PAYMENT:	Vendor DOES NOT accept credit cards. EMPLOYEE must circle “R” in Block 22, under “Payment” on the Initial Training Request Form.	